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Preliminary Hydrogeologic Study of the Aquifer Storage Recovery Testing Site, Myrtle Beach, South Carolina

By
Joffre Castro and Brenda L. Hockensmith
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ABSTRACT

The rapid growth and economic development of the Grand Strand area have subjected the Black Creek aquifers to large ground-water withdrawals. Increased water demands have stressed the hydrological system to the point that dewatering of the aquifers probably will occur by the year 1990. One solution to this problem, known as Aquifer Storage Recovery (ASR), is currently being investigated.

The ASR test site is located at the Myrtle Beach Water Treatment Plant, just east of the Atlantic Intracoastal Waterway. Four major sedimentary formations underlie the site and are, in descending order, the shallow deposits and the Peedee, Black Creek, and Middendorf Formations.

Analysis of the hydrologic information indicates that while the Peedee and Black Creek aquifers may be part of a larger system, the Middendorf aquifers are hydraulically independent. Estimates of hydrostatic head differences between the Black Creek and Middendorf aquifers may be as great as 235 feet.

Throughout most of Horry and Georgetown Counties, aquifers of the Black Creek Formation are the principal source of ground water. The water quality may be characterized as a sodium bicarbonate type that is alkaline, low in iron, and high in chloride, fluoride, and sodium.

Owing to the great depth and salinity of the water, few wells have been drilled into the Middendorf Formation; therefore, detailed hydrogeologic information is sparse.

Feasibility testing of twelve zones for ASR has been recommended: eight zones are in the Black Creek Formation and four in the Middendorf. For this purpose, a test well has been designed.

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